



ECVP/ESVP Summer School in Veterinary Pathology



Marie Curie Training Courses

Summer School 2006 – Emerging Infectious Diseases Case 9

CASE 9 Provided by: Dr. Arnold Wünschmann, College of Veterinary Medicine, University of Minnesota, St Paul, USA

Signalement: Penguin, adult, female

History:

Zoo animal. Found dead after approximately two days of lethargy.

Gross Findings:

Mild ascites, moderate enlargement of liver and spleen and marked diffuse pulmonary oedema.

Histology: Tissue from a penguin.

1. DESCRIPTION OF HISTOLOGIC FINDINGS

Spleen. Throughout the red pulp there are very numerous macrophages, with lesser lymphocytes and plasma cells. Macrophages frequently exhibit hypereosinophilic cytoplasm and karyorrhectic and karyolytic nuclei (necrosis). Additionally, macrophages frequently contain one to several intracytoplasmic, basophilic spherical structures, 1-2 μm in diameter (merozoites). Lesser numbers of macrophages exhibit intracytoplasmic, eosinophilic (5-15 μm diameter), empty, cystic structures with nuclei, others contain up to 15 μm diameter large basophilic structures composed of numerous merozoites (schizonts). Additionally, the red pulp contains very numerous erythrocytes (hyperaemia) as well as some megakaryocytes and erythroblasts (extramedullary haematopoiesis).

[Lung. (in many slides, only a fragment of lung tissue was present) Diffusely, air capillary walls are moderately infiltrated by macrophages that often contain intracytoplasmic parasitic cysts measuring up to 10 μm in diameter (schizonts) and which contain up to twenty 1-2 μm diameter, round, basophilic structures (merozoites). Multifocally, there are moderate numbers of lymphocytes admixed with fewer plasma cells. Some vessels contain fibrinoid thrombi and there is marked oedema.]

2. MORPHOLOGIC DIAGNOSIS

Spleen; severe multifocal necrosis and marked histiocytosis, with intracellular protozoan parasite structures, consistent with *Plasmodium* sp.; mild extramedullary haematopoiesis.

[Lung; mild histiocytic parabronchitis with foamy macrophages with occasional intracellular protozoan parasite structures, consistent with *Plasmodium* sp.; marked oedema; occasional vessels with fibrinoid thrombi.]

3. ETIOLOGY

- *Plasmodium* sp., most likely *Plasmodium relictum*